



# Formulation And Evaluation Of Herbal Anti-Dandruff Shampoo From Bhringraj Splint

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## Abstract

Herbal shampoos are the cosmetic preparations that with the use of traditional ayurvedic herbs are meant for cleansing the hair and scalp just like the regular synthetic shampoo. The herbal shampoo was formulated by adding the extracts of *Aloe vera*, *Phyllanthus emblica*, *Acacia concinna*, *Withania somnifera*, *Aegle marmelos*. They are used for removal of oils, dandruff, dirt, environmental pollutions etc. Herbal shampoo is a type of cosmetic preparation that uses herbs from plants as an alternative to the synthetic shampoo available in the market. The herbal shampoo is important, as people nowadays prefer herbal products than chemical ones for they proved to enhance health. Evaluation of the organoleptic properties, physicochemical and performance test were carried out. The results indicated that this can be used as a potential alternative for cleaning and managing hair in a natural and effective way instead of synthetic source. The awareness and need for cosmetics with herbs are increasing day by day, primarily because it is believed that these products are safe and free from side effects. In this research, we use *Eclipta prostrata* as an active ingredient for hair growth activity.

**Keywords:** Herbal Shampoo, Natural & Healthy, Dandruff, *Aloe vera*, *Phyllanthus emblica*, *Acacia concinna*, *Sapindus mukorossi*, *Aegle marmelos*, *Withania somnifera*, Evaluation of shampoo.

## Introduction

Hair is one of the external indicators of internal body circumstances. It is an important part of human body [1]. Derived from ectoderm and is caring appendages on the body. Associated with sebaceous glands, sweat glands. Hair care products are the preparation which are meant for cleansing, modifying the texture, changing of the colour, providing nourishment to the hair and giving the healthy look to the hair [2]. Shampoo is labelled as a cosmetic preparation meant for washing hair of accumulated sebum, scalp debris and residue of hair preparing preparation. Herbal shampoo is a beautifying preparation which uses herbs from plants and it is meant for washing of hair and scalp just like a systematic shampoo causes damaging effects on hairs, skin and eyes so community got attracted towards the herbal products, [2,3] due to negligible side effects and less shampoo with various herbs for multipurpose use by eliminating all traditionally incorporated synthetic ingredients [3]. This shampoo clears sebum, dirt, dandruff, helps hair growth, strengthens, and darkens hair. This herbal shampoo powder completes all these movements without affecting or harmful hair. The shampoo was prepared by taking the extracts of *Aegle marmelos*, *Aloe vera*, *Phyllanthus emblica*, *Acacia concinna*, *Withania somnifera*, *Sapindus mukorossi*. *Bael*, *Aegle marmelos* (L.) Corrêa, is one of the medicinally treasured tree classes [4] out of the 250,000 living terrestrial plant

species on earth. Bael is also known as begal-quince, golden apple, and stone apple in India and a sacred tree in places anywhere Hindus survive. Bael trees are generally planted close to temples dedicated to Lord Shiva and usually worshiped by the devotees [5]. Bael is one of the greatest valued plants used in ayurvedic remedy by the Indian and other South Asian inhabitants in ancient history [4]. According to the historical records, bael is used as a medicinal and food item since 5000 B.C.

[5] and known to human beings even when script the well-known Sanskrit classic-poem Ramayana [6]. Bael is declared in the famous book Charaka Samhita, a comprehensive gathering of all the essential ayurvedic information, which recognized bael as a necessary item in ayurvedic medicine [6,7]. The tree is aromatic, and all the parts are curatively important. Fruits, leaves, bark, roots, and seeds are used in ayurvedic and folk medicine systems to treat various ailments. Evaluation of organoleptic properties, physicochemical and managing hair in a natural and effective way instead of synthetic source [8]. The present work completes the successful research of herbal shampoo using natural constituent. All the ingredients used to formulate shampoo are safer and the physicochemical evaluation showed ideal result.



**Fig no-1 Bhringraj Plant illustration.**

## **Classification of Shampoo-**

### **A) Based on appearance-**

- Powder Shampoo
- Liquid Shampoo
- Lotion Shampoo
- Cream Shampoo
- Jelly Shampoo
- Aerosol Shampoo
- Specialized Shampoo

### **B) Based on origin-**

- Anti-dandruff shampoo
- Therapeutic shampoo
- Baby shampoo
- Conditioning shampoo

Evaluation of shampoo comprises the quality control test including visual assessment, pH and density, viscosity.

## Classification-

**Kingdom-** Plantae

**Sub-kingdom-** Viridiaeplantae

**Class-** Magnoliopsida

**Division-** Angiosperme

**Family-** asteraceae

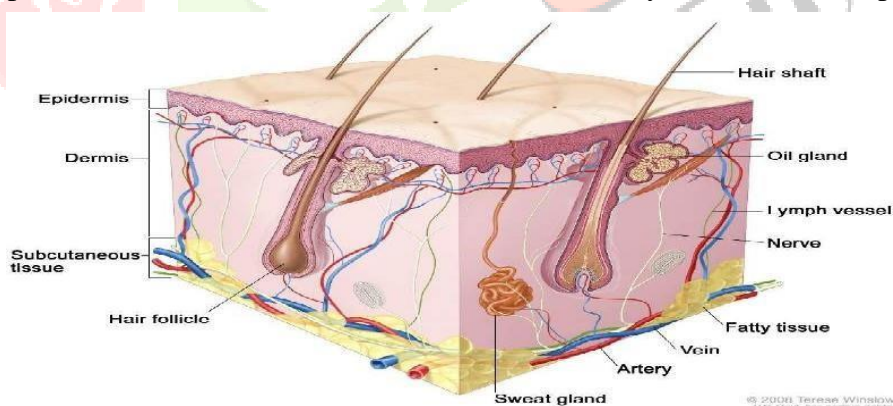
Vernacular Names-

- Hindi - Bhangara, Bhangaraiya, Mochkand, Babri.
- Bengali - Bheemraja, Kesuriya, Kesari, Kesuri, Kesuti.
- Malyali - Kayyoni.
- Gujrati - Bhangaro, Bhangro, Kalugranthi, Dodhak, Kalobhangro
- Telugu - Guntakalagara, Guntagalagara
- Tamil – Karisalankanni, Karisalanganni, Karisalai, kaikeshi.
- Urdu – Bhang
- Assam – Bhringraja
- Sanskrit – Keshraj, Tekraja, Bhrunga, Markava, Bhangara
- Marathi – Bhangara, Bhringiraja, Maka.
- Punjabi – Bhangra
- English – Trailing Eclipta.

## Hair Anatomy-

Hair is the derivative of epidermis consist of two parts –Follicle and the hair shaft.

Each hair has a hair shaft and a hair root. The shaft is the visible part of the hair that sticks out of the skin. The hair root is in the skin and extends down to the deeper layers of the skin. To each hair follicle is attached to a little muscle (arrector pili) that can make the hair arise. Many nerves termination at the hair follicle too. Hair produces from hair follicles located within the fatty cover of the scalp.



**Fig no 2- Hair Anatomy**

## Composition of Shampoos

The products used to make soaps are as follows. We include crucial surfactants.e.g. Sodium lauryl sulphate, lauryl sulphate Triethanol. For eg, dialkyl sulphosuccinates, monoalkyl sulphosuccinates, secondary surfactants.E.g., salicylic acid, Benzoic acid, diseases and antidandruff agent. Packaging agentse.g. Adipose substances similar as lanolin, and fats.E.g. 4- methyl- 7- diethylamino coumarin is a perlescent agent. Sequesters,e.g. EDTA Sodium Salt. Thickeners,e.g. They're alginates. exemplifications of preservatives are formaldehyde, methyl paraben, propyl paraben. Solubilizing agents similar as aliphatic alcohols, urea and so on (2 – 6). Dandruff represents one of the most common dermatological skin conditions and is a habitual, non- seditious condition of the crown that's characterized by nordinate scaling of crown



towel. Dandruff is supposedly caused by a fungus called *Malassezia restricta* and *M. globosa*. *Malassezia* formerly known as *Pityrosporum* is a microorganism that causes skin and scalp infections. Warm and sticky terrain, overcrowding and poor personal hygiene are ideally suited for the growth of *Malassezia* (7 – 8). Dandruff affects 5% of the population and occurs primarily after puberty, between 20 – 30 years and dandruff affects males more than females. Dandruff occurs generally on the skin in areas with high concentrations of sebum. Symptoms of dandruff include intense itching, flakes; greenishness of the scalp (9). A shampoo is a medication containing a suitable surfactant (i.e. surface-active material) – liquid, solid or greaseproof – which, when used under the specified conditions, removes scalp grease, dirt and skin debris from the hair shaft and scalp without negatively affecting the scalp. Most shampoos contain water, a soap (detergent), surfactant (cleansing agent), preservative, scent (non-polluting agent) numerous shampoos frequently contain vitamins and moisturizing alcohols to avoid too much dryness of the scalp from being washed down from the hair and scalp during washing. Herbal CR Journals (Volume 5 – 11) 2020. All Rights Reserved Page 7 Pharmacy Practice and Research Volume 1 Issue 1 Cosmetics, herein referred to as Products, and are formulated using various natural constituents to form the base on which only one or further herbal constituents are used to give specified natural benefits (10 – 11). Herbal products are an alternative to synthetic drugs, or their preparations. Over the last many decades, the use of natural products in cosmetics has increased dramatically. Currently there are numerous herbal shampoos on the market which contain herbal constituents similar as natural extracts and essential oils. There are a large number of recorded shops that have natural goods on hair and are extensively used in shampoos. In other shampoo preparations certain herbs similar as *Hibiscus rosasinensis*, *Lawsonia inermis*, *Citrus aurantifolia*, *Phyllanthus emblica*, *Ocimum sanctum*, *Zingiber officinale*, *Azadirachta indica*, aloe vera were used as anti-dandruff agents.

### Ingredients of Shampoo

The ingredients used in making shampoo are as follows. We include important surfactants. For example, sodium lauryl sulfate, lauryl sulfate triethanol. For example, dialkyl sulfosuccinate, monoalkyl sulfosuccinate, co-surfactants. For example, salicylic acid, benzoic acid, antiseptics and anti-dandruff. Ingredients such as oil-based products such as lanolin and oil. For example, 4-methyl-7-diethylaminocoumarin is an osmotic agent. Emulsifiers such as EDTA sodium salt. Thickeners are, for example, alginates. Examples of preservatives are formaldehyde, methylparaben and propylparaben. Fatty alcohols, urea etc. solubilizers such as. [2-

6]. Dandruff is one of the most common dermatological diseases and is a chronic, non-inflammatory disease. Many dry skin formations are seen on the scalp. Dandruff is caused by bacteria called *Malassezia* and *Malassezia globosa*. *Malassezia*, formerly known as *Pityrosporum pityrosporum*, is a type of yeast that can infect the skin and scalp. A warm environment, humid, crowded and poor personal hygiene are good for the growth of *Malassezia* [7-

8]. Dandruff affects about 5% of the population and usually occurs after puberty, between the ages of 20 and 30. Dandruff affects men more than women. Dandruff usually occurs in areas of the skin with high sebum content. The main symptoms of dandruff

are itching and flaking; redness of the scalp

9]. Shampoo is a preparation that requires surfactants (e.g. surfactants) (liquid, solid or powder) and can remove oil and grease when used in condition. > Dirt and debris on the hair and scalp do not affect the user. Shampoos usually contain water, detergents, surfactants (cleansers), salt, fragrances (unscented). scalp Herbs CR Magazine (pages 5–11) 2020. All rights reserved

The cosmetics referred to herein as products are formulated using various natural cosmetic ingredients and form the basis. have only used the specific benefits of one or more herbal ingredients [10-11]. Herbal medicine is an alternative to synthetic drugs or their preparations. The use of natural products in cosmetics has increased significantly in the last few years.

There are many herbal shampoos on the market today that contain herbal ingredients such as plant extracts and essential oils. The plant has many beneficial properties for hair and is widely used in shampoos. Other shampoos use certain herbs like hibiscus, acanthus, tangerine, amla, holy basil, ginger, neem, aloe vera to prevent dandruff.

## MATERIALS AND METHODS

Lemon Grass Oil, Neem Oil, Bhringraj Greasepaint, Henna oil painting was carried from original request. Sodium lauryl sulfate glycerin, EDTA was carried from SVR Labs, Hyderabad. Preparation of Shampoo Preparation of anti-dandruff soap Shampoo was formulated using simple mixing process. Herbal anti-dandruff soap was formulated by adding the needed quantities of herbal constituents as given in the expression table no 1.

Table 1. Formulation of Herbal Anti-Dandruff Shampoo

Ingredient	Batch 1	Batch 2	Batch 3	Batch 4
Neem oil	0.5	1.0	1.5	2.0
Lemon Grass Oil	0.5	1.0	1.5	2.0
Bhringraj Powder	0.5	1.0	1.5	2.0
Henna Oil (ml)	0.5	1.0	1.5	2.0
Sodium Lauryl Sulfate (gms)	20	15	10	5
Glycerin (ml)	1	1	1	1
EDTA (gm.)	0.15	0.15	0.15	0.15
Sodium Hydroxide	To adjust pH	To adjust pH	To adjust pH	To adjust pH
Water	q.s	q.s	q.s	q.s
Perfume	q.s	q.s	q.s	q.s
Total	100ml	100ml	100ml	100ml

### Evaluation of Herbal shampoo

#### Physical test of shampoo

Formulation of shampoo evaluated for done from as per formula Given in the solution added herbal extracts and mixed shaking with continuously at time of intervals.

#### 1 Visual assessment

The prepared formulation as per colour, clarity, odour, and front content

#### 2 PH determination

The ph of prepared shampoo in distilled water was evaluated by which pH analyzer at room temperature



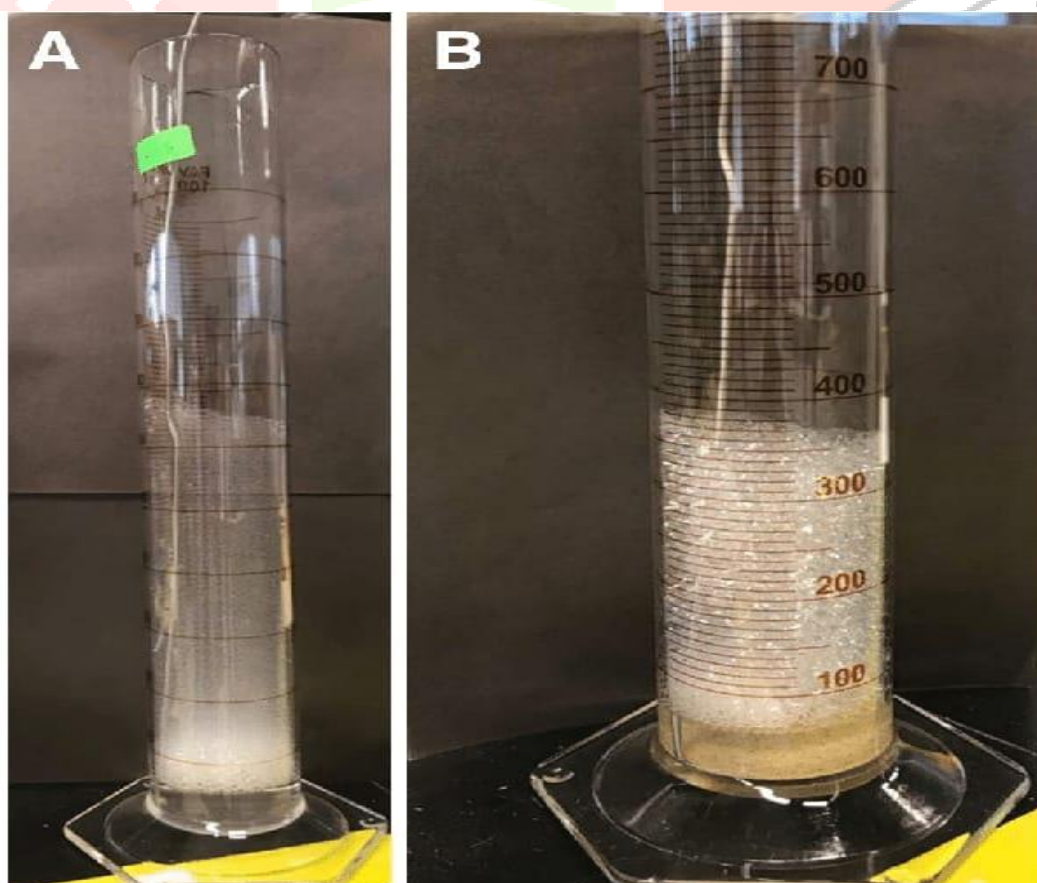
### 3 Surface tension measurement

The prepared shampoo in distilled water (10% w/v) was evaluated for surface tension using stalagmometer

### 4 Testing of wetting

Wetting time was calculated by noting the time required by the canvas paper to sink completely [3]. A canvas paper weighing 0.44 g was cut into a disc of diameter measuring 1 Inch. Over the shampoo (1% v/v) surface, the canvas paper disc was kept and the time taken for the paper to sink was measured using the stopwatch.

5 Foam stability test The stability of the foam was determined using cylinder shake method. About 50 ml of formulated shampoo (1%) solution was taken in a graduated cylinder of 250 ml capacity and shaken for 10 times vigorously. Foam stability was measured by recording the foam volume of shake test after 1 min and 4 min, respectively. The total foam volume was measured after 1 min of shaking.



**Fig:-Foam Stability**

6 Dirt dispersion test –To 10 ml of refined water two drops of cleanser were included and taken in a wide-mouthed test tube. To the formulated shampoo, added one drop of Indian ink and shaken for 10 min after closing the test tube with a stopper. The volume of ink in the froth was measured and result was graded in term of nun slight, medium or heavy

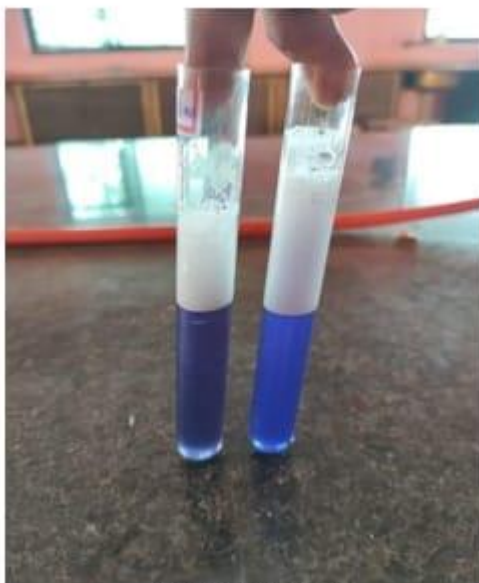


Fig.4 Dirt Dispersion

## RESULT AND DISCUSSION

1. The physical properties of formulated shampoo were judged by color, odor and texture

### 1 Organoleptic characteristics

SR.NO	PARAMETER	OBSERVATION
1	COLOUR	PALE BROWN
2	ODOUR	CHARACTERISTIC
3	TEXTURE	SMOOTH
4	APPERANCE	SEMI SOLID
5	PH	6.03



## 2 PH determination

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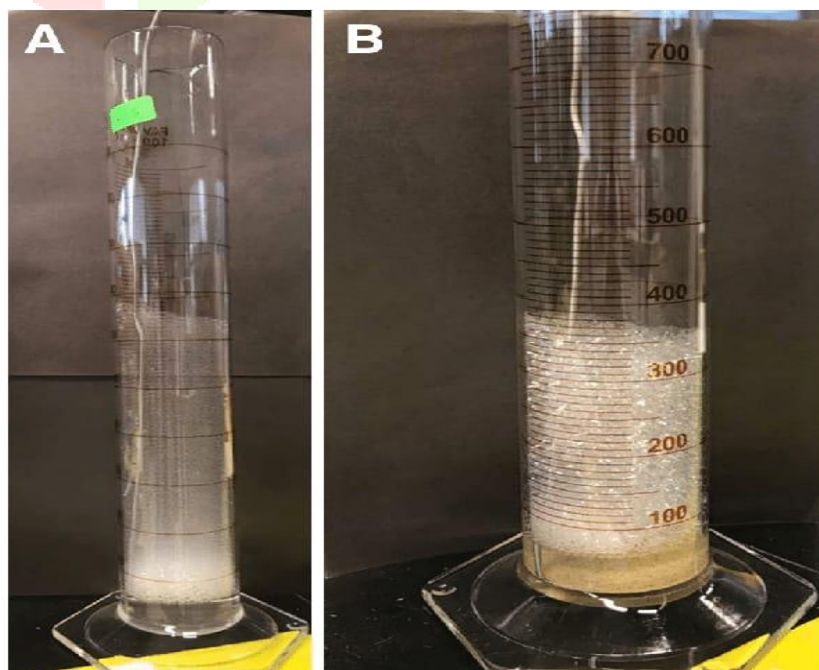


Fig: -Foam Stability



## 6 Stability Test

study was carried out for prepared shampoo at temperature of 30<sup>0c</sup> for 1month and after 1 month they have change 40<sup>0c</sup>

Test	After One Month	
Colour	Pale brown	
Odour	Characteristic	
texture	smooth	
appearance	Semisolid	
Ph Value	6.03	6.04
Thermal Stability	Stable	
Degredation Of Product	No	

## Conclusion

The latest research has shown that Bhringraj Powder exhibits excellent antifungal behavior. The antidandruff shampoo was formulated by adding Bhringraj Powder as the principal ingredients of the antidandruff. As additives play an important role in determining any formulation's efficiency, stability and aesthetic appeal, this point was held in mind when selecting the additives for shampoo formulation. Eventually they

(U.P.), India for their support. I would also thanks to my guide gosavi sir for guiding and motivating me. invented and tested the antidandruff shampoo. As seen from the tests, a herbal antidandruff shampoo can be formulated which is not only equal to the conventional shampoo in its consistency but also has better health, efficacy and purity.

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